Has the Intergenerational Transmission of Economic Status Changed?

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Abstract

We use data from the PSID to assess whether the effect of parental income on son's economic status has changed for cohorts born between 1949 and 1962. We find that the effect of parental income on sons' family income and wages at age thirty has declined over this period. This is largely because the effect of parental income on son's years of schooling has declined. The decline in the effect of parental income is not part of an overall decline in the effect of family background. We provide suggestive evidence that the decline is due to the increase in government investment in children, especially in their educational attainment.

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The extent to which economic status is transmitted from one generation to the next has long been of interest to social scientists and policy makers. This interest largely arises because of the belief that the intergenerational transmission of economic status violates norms of equal opportunity. Imagine two societies with exactly the same mean, variance, and distribution of income. In Society A, children's economic status is perfectly correlated with their parent's economic status, and in Society B there is no correlation. Most people would agree that opportunity was more equal in Society B.

Many studies have estimated the intergenerational transmission of economic status in the United States. (See Solon, 2000, for a review of these studies.) A few compare economic mobility in the United States with economic mobility in other countries. (See Bjorklund and Jantti, 2000, for a review.). But we know of no published study that has tried to estimate whether economic mobility has changed over time.

Understanding changes in the intergenerational transmission of economic status is important for several reasons. Substantively, understanding changes in intergenerational mobility can help us understand the implications of the rise in inequality over the last twenty-five years. Inequality can grow because rich and poor children's opportunities diverge leaving their incomes farther apart than their parents' incomes. But inequality can grow even when the intergenerational transmission of economic status declines. In this case the economic fortunes of children diverge but their fortunes depend less on their parents income. These two scenarios imply quite different conclusions about the consequences of growing inequality for poor children and about equality of opportunity in general.

At a more technical level knowing whether mobility has changed is important because estimates of intergeneration mobility often group data on cohorts of children born over many years. Other studies measure outcomes in a particular year for respondents of different ages. Such estimates are in effect an average for all birth cohorts included in the sample. If mobility has changed over time, estimates of mobility will be sensitive to the years over which mobility is measured.

I. Previous Research on Intergenerational Mobility

Estimates of the correlation between a father's economic status in a randomly selected year and his son's economic status in a randomly selected year are usually .20 or less (Sewell and Hauser 1975, Behrmen, Taubman and Wales 1980, Behrman and Taubman 1990, Becker and Tomes 1986) where economic status is measured by income, wages or earnings. Averaging income over several years reduces the importance of measurement error due to the transitory component of income. Thus the correlation between parents' economic status averaged over several years and a son's economic status averaged over several years tends to be larger than the single year correlation, suggesting much less intergenerational mobility (Solon 1992, Zimmerman 1992, Altonji and Dunn 1991). Previous research shows that estimates of the intergenerational transmission of economic status rise with the age at which children's outcomes are measured and are greater for both family food consumption and wealth than for earnings, wages, or schooling (Bowles and Gintis 2000, Solon 2000).

However, estimates of intergenerational mobility that use the same data, for the same outcome, and average parental economic status over several years vary considerably. Among eighteen studies using PSID data and averaging parental income over several years, the elasticity of son's earnings with respect to father's earnings varies from .13 to .53.[2] Of these estimates, three are less than .30, five are between .30 and .40, eight are between .40 and .50 and two are above .50. If we consider only the five studies that estimate the effect of father's earnings averaged over five years on son's annual earnings measured in a specific year, the estimates are from .32 to .53. In the three studies among these five that include sons born between 1951 and 1959, the estimates are .39, .41, and .53. The other two studies include more recent cohorts and have lower estimates, .34 and .31.

Recent research by sociologists finds that the relationship between fathers' and sons' occupational status has not increased and probably has decreased in the last thirty years (Biblarz et al. 1996, Grusky and DiPrete 1990, Hauser 1998, Hout 1988). Other sociological research suggests a long-term gradual decrease in intergenerational occupational mobility. For example, Featherman and Hauser (1978) found that the effects of family background were lower in the 1973 than in the 1962 Occupational Changes in a Generation Survey. Occupational status and

[2] These numbers are from Table 3 in Solon (2000).

income are related, but they do not measure the same thing and the correlation is typically less than .50 in the U.S. (Duncan et al. 1972). Thus trends in the association between parents' and children's occupational status need not follow the same trend as the association between parents' and children's economic status.

II. Why Economic Mobility Could Change

Economists usually define the relationship between a parent's economic status (Y_p) and child's (Y_c) economic status as follows:

$$\ln Y_c = \alpha + \beta_p \ln Y_p + \varepsilon_c. \qquad (1)$$

Mobility, then, is defined as $1 - \beta_p$.

The economic model underlying equation 1 is the human capital model. It holds that a child's economic status is a function of parental endowments and investments in their children. Endowments include biological and genetic characteristics such as I.Q. and eye color. Monetary investments are the goods and services that help children succeed such as nutritious meals, schooling, and health care. According to this model affluent parents can afford to invest more in their children, so children of affluent parents are more likely to themselves be affluent than children of poorer parents. Psychologists and sociologists usually emphasize a third mechanism to explain the relationship between parent's and children's economic status, namely non-monetary investments such as good parenting, high expectations, and emotional support. According to these models low income increases parent's stress and therefore reduces their ability to provide non-monetary investments in their children.

Given this model, and assuming that over fairly short periods of time the genetic transmission of characteristics does not change, the effect of parental income on children's economic status can change under at least three circumstances: 1) the relative investments made by rich and poor parents change, 2) the payoff to the investments change, or 3) the returns to genetic or biologically transmitted characteristics change.

Changes in the relative investments in rich and poor children. Parents are not the only source of investment in children. Federal and state expenditures on behalf of children have increased greatly over the past thirty years, and much of this spending was intended to reduce the

"investment gap" between rich and poor children. Means-tested programs such as Medicaid, food stamps, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Head Start, and Pell Grants for college expenses were designed to increase investment in the health, nutrition, and knowledge of poor children. Between 1970 and 1992 real spending on Head Start doubled. Since it was implemented in 1977, the number of people served by the WIC has increased from 848 thousand to 7.2 million and expenditures have increased from $668 million to $3.7 billion (1996 constant dollars, in 1996 Green Book 1998). The School Lunch and School Breakfast program have experienced similar growth. In 1995 the federal government spent over $2,000 for every child under the age of eighteen in the United States (Green Book 1993 pg 1567), most of it targeted at low income children. If the programs achieved their intended result, the effect of parental income should be lower for children reared after these programs were implemented than for children reared before the programs existed.

Although it is obvious how means-tested programs could reduce the "investment gap" between rich and poor children, universal programs can also reduce the gap under some circumstances. Most social scientists assume that a child's economic success increases at a diminishing rate as the level of investment in the child rises. Although the empirical evidence for this assumption is weak, some research suggests that the effect of parental income on children's educational attainment and eventual wages is nonlinear and concave downward (Duncan et al. 1998, Mayer 1997). This implies that the first dollar of investment creates the greatest increase in the economic well-being of the child. It also implies that when institutions outside the family invest equally in all children, poor children are likely to gain more than affluent children, because poor children's parents have not invested as much. Probably the most important government investment in children is public schools. Total per pupil spending on public education increased from $3,642 in 1972 to $5,576 in 1992 (in constant dollars) and it became more equal across school districts within states (Murray et al. 1998).

Changes in returns to investments in children. Changes in the returns to parental investments can also affect intergenerational mobility. Returns to schooling have increased over the last twenty years. If parents continue to invest the same amount in their children's schooling and nothing else changes, an increase in the return to schooling would mean that inequality between affluent children (who are more likely to go to college) and poorer children (who are less likely to go to college) would increase. Put another way, if the effect of parental income on

their children's schooling does not change, but the returns to schooling increases intergenerational mobility will decline because the effect of parental income on children's income will increase. The increase in the return to schooling and the increase in government investments in children could off-set one another leading to no change in intergenerational mobility.

Changes in returns to genetic traits. Changes in the returns to genetic traits passed from parents to children can also affect intergenerational mobility. Cognitive skills are partly genetically transmitted and parents with high cognitive skills have higher income than parents with low cognitive skills. If returns to cognitive test scores increase, and nothing else changes the intergenerational correlation of economic status would increase.

The economic returns to other genetic traits also may have changed. Historically black parents have averaged lower incomes than white parents and black children have averaged lower incomes than white children. If the negative return to being black declines and nothing else changes, the intergenerational correlation of economic status could decrease.[3] If the effect of race on children's economic status declined, the estimated effect of parental economic status would decline because it would no longer be upwardly biased.

Thus changes in intergenerational mobility can arise from many sources. We also assess the possibility that changes in data quality and demographic trends affect the trend in intergenerational mobility.

III. Methods

In equation 1 β_p is the elasticity of children's income with respect to parents' income. If $\beta_p = .10$ for example, children who grew up in families whose income differed by say 100 percent would differ by ten percent on average. This model, like those used in all the research on intergenerational mobility, estimates the effect of parental income *and all its correlates* on children's economic success. There are numerous avenues through which this relationship can

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[3] Imagine that the following model accurately predicts child *c*'s income from parent *p*'s income and a dummy variable for being black,

$$I_c = \alpha + \beta_1 I_p + \beta_2 B_i + \varepsilon_i$$

If at time 1 black parents have lower incomes than white parents, and β_2 is negative, then omitting B_i from this model will produce an upwardly biased estimate of β_1. If then at time 2, β_2 is zero, β_1 will presumably decrease because it will no longer be upwardly biased.

arise including through parents' cognitive skill, education, parenting skills, and so on. We return to this issue below.

Research on intergenerational mobility often refers to β_p as the intergenerational correlation of economic status. The estimated value of β_p, is defined as follows:

$$\hat{\beta}_p = (r_{\ln Y_c, \ln Y_p})(\frac{s_{\ln Y_c}}{s_{\ln Y_p}}) \tag{2}$$

where $r_{lnYc, lnYp}$ is the sample correlation between the log of the parents' and the log of children's economic status and s_{lnYc} and s_{lnYp} are the standard deviation of the logarithm of children's and the logarithm of parents' economic status, respectively.

If the variance of the measure of parents' economic status is equal to the variance of the children's economic status, then β_p is equivalent to the correlation between the logarithm of the parents' and the logarithm of the child's economic status. The degree of intergenerational mobility is then 1 - β_p. However, when inequality is growing, estimating the intergenerational correlation using β_p is likely to be misleading. Unless the growth in inequality is the same for both generations, the ratio of the variance of parent's and children's economic status will change over time. If the ratio increases, β_p will be an increasingly inaccurate estimate of the intergenerational correlation of economic status. In particular if the variance of children's income grows faster than the variance of parent's income, β_p will be an increasingly upwardly biased estimate of the intergenerational correlation. Traditionally, this problem has been "swept under the rug" (Solon, 1992).

We follow the literature and report this measure of β_p. We also estimate the standardized coefficient, Beta, from equation 1. Beta is estimated as follows:

$$\hat{\beta}_p * \left(\frac{s_{\ln Y_p}}{s_{\ln Y_c}} \right) = r_{\ln Y_c, \ln Y_p} = \beta eta \tag{3}$$

In this bi-variate regression Beta is equivalent to the sample correlation between parent's and children's economic status. Trends in its value are unaffected by changes in the variance of either generation's income distribution. Thus, 1-Beta is in principle a better measure of intergenerational mobility than 1-β_p. Beta is interpreted as the predicted standard deviation change in Y_c for each standard deviation change in Y_p. Thus it tells us the extent to which children's relative economic status corresponds to their parent's relative economic status.

Most models of intergenerational mobility estimate the effect of a measure of parental economic status on the same measure for the child. Thus they estimate the effect of, say father's wage on son's wage or father's earnings on son's earnings. Such models are in the tradition of Galton (1886) and others who try to estimate the "inheritability" of traits. In this framework it makes sense to estimate the effect of a parental characteristic on the same characteristic among children just as one would estimate the effect of parental eye color on child's eye color but not on child's I.Q. But if parent's economic investments in children account for the intergenerational transmission of economic status, parental income should be more important to children's outcomes than parent's wage rate or earnings. This is because the amount that parents can invest in their children is a function of their total family income, regardless of the source of the income. Thus we estimate the effect of parental income on measures of children's economic status. The variance of the same outcome for parents and children is likely to be about equal, so that β_p can be interpreted as the intergenerational correlation when models predict children's economic status from the same measure of parents' economic status. The variance of family income is less likely to be the same as the variance of son's wages.

We estimate the effect of family income on two measures of son' economic status, namely hourly wages and household income, both measured when the son was thirty years old. As noted the economic model that predicts a relationship between the economic status of parents and children is mainly a human capital model that emphasizes parental investment in children. Because we adopt the logic of the human capital model, we take family income as an indicator of parent's potential monetary investment in children. Such investments affect children's human capital, which should affect their wage rate. Family income is the result of not only endowments and investment in human capital, but also decisions about how many hours to work and living arrangements. Thus trends in the relationship between parental income and son's income may not be the same as trends in the effect of parental income on son's wage rate.

We confine our analysis to sons for two reasons. First, most of the previous research on the intergenerational transmission of economic status has been on sons and we compare our results to these earlier studies. Second, wages at age thirty is likely to be a worse measure of women's than men's permanent wage rate. Women's wages are influenced by their fertility choices. At age thirty some women will have had children and taken time off from work to care for them. Others will have children in the future and take time off then. The current wages of the former will be lower than the current wages of the latter even when their life-time earnings are the same. The age at first birth has increased, and it has increased more for highly educated women than for women with fewer years of schooling. If the characteristics of women who work have changed over time and these changes are associated with parental income, it could bias the trend in effect of parental income on labor market outcomes.

Equation 1 can be taken as a reduced form estimate of the effect of parental income and its correlates. It is possible for the correlation between parent's and children's economic status to remain constant if the effect of some correlates of parental income increase while others decrease. To account for this possibility, we also estimate models that control several other family background characteristics. However, like other studies of intergenerational mobility, we do not make a definitive attempt to decompose β_p into its causal components.

IV. Data

We use the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal data set initiated with a core sample of approximately 4,800 families in 1968. As children in the original sample have established their own households, they and all members of their new households were included in the data set, thereby increasing the sample size over time. Our PSID sample includes all males born between 1949 and 1962 whose parents were respondents to the survey and who had positive income or wages when they were thirty years old. The structure of the PSID implies that these men were heads of household when they were thirty.[4]

We average parental income over the years when a child was aged nineteen to twenty-five.[5] Families with less than three years of income were excluded in order to minimize error in

[4] We use all available years of PSID data. Early release data are available for years after 1992, but these data are missing many more cases on the wage variable than previous years, the mean wage is higher than in previous years and the variance is much greater than in previous years. Thus we decided not to use these data.

the measurement of the parents' permanent income. We inflate all income values to 1995 dollars using the CPI-U-X1.

Although the PSID is the only data set available with sufficient information on both parents and sons to estimate intergenerational mobility, it is not ideal. The number of males who turned thirty in each year is small, and the cohorts span a fairly short historical period. Table 1 describes the sample by four-year birth cohorts. Although the cohorts span only fourteen years, they include a period in which important changes were taking place. Sons reached age thirty during years when economic inequality was growing in part because of an increase in returns to skills. Significant parts of the childhood of the younger groups occurred after 1968 when government investments in children began to increase steeply.

For some models we control additional family background characteristics. These include the parents' education and marital status, and the child's race. Appendix A describes these variables in detail and provides descriptive statistics for them.

Table 2 shows the means and standard deviations for log parental income and the two measures of son's economic status. The mean of log parental income increased then decreased over time. Sons' mean income at age thirty declined over time. Son's wages at age thirty also declined somewhat over time.

Generally, the standard deviation of both parents' and sons' family income increased over time, reflecting the rise in economic inequality over this period. The increase in the standard deviation of log income was about the same for parents and son's. The ratio of parent's log income to son's log income is 1.13 for the first cohort and .989 for the youngest cohort. Because this ratio is close to 1 for all cohorts, β_p should be approximately equal to Beta in all years. The standard deviation of parent's income is greater than the standard deviation of son's log hourly wages in most years.

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[5] In principle we wish to measure parental income over a child's entire childhood. However, averaging income over such a long period would reduce the sample size to an unworkably small number. We assume that family income when children are nineteen to twenty-five is strongly correlated with their family income when they were younger. For the youngest cohorts we estimated similar models measuring parental income when children were twelve to fourteen years old and obtained substantively similar results. We also selected a subset of respondents for whom we had family income data both during early adolescence and during early adulthood. We then used a Chow test to determine if the coefficients in the sample with income measured at a young age were the same as the coefficients for the sample with income measured later. We failed to reject the null hypothesis that these coefficients were the same at the one percent level.

V. Results

For sons born between 1949 and 1962 who were thirty years old when their economic status was measured, the correlation between parental income and son's income is .333, the correlation between parental income and son's wages is .276. These estimates are lower than the estimates of the intergenerational correlation of economic status obtained by Solon (1992) and others who use the PSID and average parental income over several years. For example, Solon finds that the elasticity between parental income measured in only one year and son's family income is .483. Because our emphasis is on the trend in intergenerational mobility and not the level of intergenerational mobility, and estimating changes in mobility requires a different data structure, we do not try to reconcile our estimates with others. Nonetheless a few words on the differences between our estimate and Solon's are instructive.

The main difference between our estimates and Solon's estimates are that we include more recent cohorts, we measure parental income at a later age, and we include sons whose fathers were not present in the home.[6] Solon notes that when he includes sons from mother-headed families the elasticity decreases from .48 to .44. When we limit our sample to sons from married parent families, our elasticity rises from .33 to .38. Solon's sample includes sons born between 1951 and 1959. When we confine our sample to sons born in these years, our elasticity rises to .39.

Figure 1 shows the trend in β_p and Beta from the bi-variate regression of parental income on son's income. To smooth the trend in intergenerational mobility, we divide the sample into eleven overlapping or "rolling" groups (ten for the wage sample). Males born between 1949 and 1952 are group one. Males born between 1950 and 1953 are group two and so on through males born in 1962. We then estimate the effect of parental income separately for each of the "rolling" groups. In this rolling group structure individuals for three of the four years are the same in consecutive groups.

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[6] There are other differences between out estimate and Solon's estimate as well. Solon omits respondents who were part of the Survey of Economic Opportunity, a survey component that over-represented families with low-income in 1967. We measure son's economic status at age thirty. Solon's sample included son's aged between 25 and 33 years but the mean age of son's was 29.6 years. Solon measured father's economic status in 1967 to 1971. In our data father's economic status can be measured anytime between 1968 and 1981. Parents are older when income is measured in our sample compared to Solon.

Estimates of the elasticity of son's income with respect to parent's income declined over time. In Figure 1 the β_p for children born between 1950 and 1956 ranges between .358 and .400 (see Table B.3). As noted above in the three studies that use PSID data, average father's earnings over five years and include sons born between 1951 and 1959, the estimated elasticities are .39, .41, and .53. Thus in our sample β_p is close to the most common estimates of intergenerational mobility from other similar studies. The smaller β_p in our total sample is due to the decline in the effect of parental income for more recent cohorts. For cohorts born between 1957 and 1962 the elasticity is between .285 and .295.

Figure 1 shows that Beta follows roughly the same trend as the elasticity and in most years is quite close to the elasticity.[7] Figure 1 also shows that the effect of parental income declined even more when we control some of the main correlates of parental income, although it appears to have rise for the last group. None of these trends is statistically significant. (See Appendix B for how we determine statistical significance).

Figure 2 shows the relationship between parental income and son's hourly wage. Both β_p and Beta decline after 1952. This decline was steep and statistically significant at the .05 level. Table 3 shows the effect of parental income on son's income and wages. For simplicity in this table we present results for non-overlapping birth cohorts. Table 3 shows that much of the effect of parental income on son's family income is due to its effect on son's wages. This is what we would expect if the "investment gap" between high and low-income children declined such that the effect of parental income on children's human capital declined. In this case we would also expect that the decline in the effect of parental income on son's wages would be due to the decline in its effect on son's educational attainment.

Figure 3 shows that the elasticity between parental income and son's years of schooling declined for cohorts born before 1960, but then increased for the youngest cohort. Unfortunately the PSID changed the way it codes respondent's education after 1985. We measure son's education at age twenty-five. Thus son's born after 1960, were subject to the new coding scheme. These are the son's for whom the relationship between parent's income and son's years of schooling increases. Although we tried to make the time series consistent, we cannot rule out the possibility that this increase is due to the methodological change. The decline to the third

cohort is statistically significant at the .05 level. Table 3 shows that some of the effect of parental income on son's wages is accounted for by the effect of parental income on son's education. The trend in the effect of parental income on son's wages declines to almost zero when son's schooling is controlled. Much of the effect of parental income on son's income is also accounted for by the effect of son's education. There is no clear trend in the effect of parental income on son's income when schooling is controlled.

The effect of parental income on son's wages and income could have declined because the effect of important correlates of parental income on children's economic status declined. But Figures 1 and 2 show that the decline in the effect of parental income on son's income and wages is steeper when we control parent's education and marital status and son's race, suggesting that some of the correlates of parental income may have become more important to children's economic success at the same time that parental income was becoming less important. This is what we might expect if the decline in β_p is due to an increase in non-family investments in children, because government programs were mainly intended to address problems associated with low parental income. Only a few programs were intended to address other parental characteristics such as low cognitive ability or ineffective parenting.

Table 4 shows that the effect of parental education (controlling parental income) on son's family income and wages increased over time. The effect of parent's marital status and child's race did not change in any consistent way over this period. Thus the decline in the effect of parental income is not simply part of an overall decline in the effect of family background characteristics on children's economic outcomes. There is no strong trend in the R^2 for models predicting son's income and wages from parental income, education and marital status and son's race. Thus while the effect of parental income declined, the effect of family background did not.

The decline in the effect of parental income on son's income and wages could arise for reasons unrelated to policy or labor market changes. As noted above, the elasticity of parental income and son's economic status is somewhat lower for sons from single parent families than for sons from married couple families. Conceivably the income in the number of single parent families could explain the decline in the effect of parental income. The proportion of sons in single parent families increased from 82.1 percent for the oldest cohort to 86.3 percent for the

[7] It is worth noting that when we confine our sample to sons born between 1951 and 1959 who lived with married parents the elasticity (.393) is considerably greater than the Beta (.355). This suggests that Solon's estimate of the

second cohort, then declines to 85.2 percent for the third cohort and 82.1 for the youngest cohort. However, when we estimate β_p only for children in intact families, the trend in the effect of parental income on son's income and wages remains downward.

The proportion of the sample that is black also increases over time from 8.8 percent for the oldest cohort to 9.9 percent for the youngest cohort. The elasticity between family income and son's income is .278 for black families and .290 for non-black families. The elasticity between family income and son's wages is .290 for black families and .215 for white families. Thus the large decline in the wage elasticity cannot be due to the increasing number of black families in the sample.

If sons' economic status at age thirty became a worse measure of permanent economic status over time β_p would decline. This could happen if sons take longer to complete their schooling, if they take more time off from school and work to travel or do volunteer work, or if they are otherwise less likely to settle into their permanent job status by age thirty. There is no obvious direct way to assess this possibility. But if younger cohorts of sons take longer to achieve their permanent job status, we might expect more thirty-year-olds to be living with their parents and fewer to have wages and earnings. We also might expect work experience at age thirty to have declined.

Appendix Table 1 shows that sons 'mean labor market experience declined by 633 hours (3.8 percent) between the oldest and the youngest cohorts. The correlation between parental income and son's labor market experience went from -.114 for the oldest cohort to -.047 for the youngest cohort. Thus children of affluent parents averaged fewer hours of work in all cohorts, but even for the oldest cohort the correlation between parental income and labor market experience is small. In addition, controlling labor market experience did not eliminate the trend in the effect of parental income on either son's wages or income. Eighty-five percent of males born in 1949 were heads of household by age thirty compared to 88 percent of males born in 1962. Seventy-four percent of thirty-year old males had earnings in 1979 compared to 76 percent of thirty-year-old males in 1992. Seventy-five percent of thirty-year-old males had income in 1979 compared to 80 percent in 1992. This evidence does not suggest that males' economic status at age thirty has become a worse measure of their permanent economic status.

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elasticity may have been an over-statement of the intergenerational correlation.

Although this evidence does not suggest that changes in measurement error or sample selection are likely to be a large source of error in the trend in β_p, we re-estimated equation 1 for thirty-five year old sons (not shown). Thirty-five year olds should be less susceptible to any problems associated with son's assuming adult roles at a later age. We only have data for the oldest three cohorts of thirty year olds at age thirty-five. For all outcomes the trend in β_p is the same when outcomes are measured at age thirty-five as age thirty.

VI. Conclusions

The results in this paper suggest that the intergenerational correlation of parents and son's income was lower for sons born in 1960-1962 than for son's born in 1949-1952. The decline in the effect of parental income on son's income was due to the decline in the effect of parental income on son's wages. Because the returns to schooling increased, the effect of parental income on son's educational attainment had to decrease in order to for the effect of parental income on son's wages to decline. This is what did happen. This implies that if the returns to schooling had not increased so much, the effect of parental income on son's wages might have declined even more.

The effect of other parental characteristics including parental education and marital status on son's income and wages did not decline. Thus the decline in the effect of parental income is not part of an overall decline in the effect of family background.

These results are somewhat tenuous. The sample sizes are small and the time period over which we estimate the trend in mobility is short. Only the decline in the effect of parental income on son's wage and son's educational (to the third cohort) attainment are statistically significant.

We hypothesize that the decline in the effect of parental income was due to an increase in non-family investments in children and present some tentative evidence to support this hypothesis. However, it will take considerably more research to test this hypothesis.

Appendix A

Data Description

We select all individuals born between 1949 and 1962, who had parents in the PSID, and who had positive wages or income when they were thirty years old. We trimmed the upper and lower one percent of the wage, income, and earnings distribution. To link these individuals to their parents, we use the Parent Identification File.

Variable definitions

Black is an indicator variable equal to one if the head of household or respondent identified his race as black, zero otherwise. We derived the race variables primarily from the 1972 wave of the PSID. For those missing information in 1972, we used information from the 1968-1971 waves as well. The majority of the race variables in the PSID (i.e., until 1985) were based on the 1972 wave. Thus, we use this variable for consistency. For individuals younger than 20 in 1972, this variable is the race of the head of the household in which they resided.

Parental education is the mother's years of schooling when the son was nineteen years old. When this value was missing we used mother's education for the first available subsequent year up to the time when the son was age twenty-five. If the mother's education was still missing, we used the education of the father when the son was twenty-five.

Parents' marital status is an indicator variable equal to one if the son's parents were married when the child was nineteen.

Son's income is son's total family income.

Son's wages is the son's hourly wage rate.

Son's experience is the total number of hours the son worked from age nineteen through age twenty-nine.

Table A1: Means and Standard Deviations for Control Variables

Birth Years	Black	Parental Education	Parents' Marital Status	Son's Experience
1949-1952	.088	11.10	.821	16578
	(.284)	(2.82)	(.384)	(5956)
1953-1956	.072	11.58	.863	16402
	(.258)	(2.49)	(.344)	(6405)
1957-1959	.116	11.70	.852	14963
	(.321)	(2.33)	(.355)	(7289)
1960-1962	.099	11.81	.821	15945
	(.299)	(2.69)	(.384)	(7144)

Appendix B

To determine if mobility has increased over time we first assume that the change in mobility is constant throughout time. Operationally, we estimate the following model:

$$\ln Y_c = \alpha + \beta \ln Y_p + \gamma(\ln Y_p * \text{year}) + \delta \text{year}, \quad (4)$$

where year is a continuous variable ranging from zero for people born in 1949 to thirteen for those people born in 1962. We then test for the statistical significance of γ. Results from these models are presented in Table B.1. The effect of year tells us if son's wages or income changed over time. The interaction tells us if the effect of parental income on son's economic status has changed over time.

Because the time trend was clearly not linear in all cases, we estimate a second model in which we include dummy variables for three independent cohorts (C) and interaction between each cohort and parental income. This model is

$$\ln Y_c = \alpha + \beta \ln Y_p + \delta_1 C_1 + \delta_2 C_2 + \delta_3 C_3 + \gamma_1(\ln Y_p * C_1) + \gamma_1(\ln Y_p * C_1) + \gamma_1(\ln Y_p * C_1) \quad (5)$$

we then test for the statistical significance of each interaction. The interactions tell us whether the effect of income is lower in that cohort compared to the omitted cohort. In tests of the significance of trends we omit the cohort with the largest elasticity between parental income and son's outcomes. We also experimented with standardizing parental income and son's outcomes to constrain the standard deviations to be the same. In the bi-variate models then the elasticity and the correlation are equal. We then re-estimated the significance of the trend. However, these estimates are very similar to the ones we report.

Table B.1: Test of Linear Trend in Mobility

	Son's Income	Son's Wage	Son's Education
Test 1	β_p [t-statistic]	β_p [t-statistic]	β_p [t-statistic]
Log Parental Income	.370 (5.536)	.350 [4.97]	
Log Parental Income*Year	-.005 [-.636]	-.016 * [-1.703]	

Notes: Model controls year.

Table B.3: Unstandardized and Standardized OLS Regression Coefficients for the Effect of Parental Income on Son's Outcomes

Outcome and Year of Birth	β_p [t-statistic]	βeta
Son's Family Income at Age 30		
1949-1952	.353 [5.46]	.399
1950-1953	.386 [6.61]	.409
1951-1954	.400 [7.13]	.395
1952-1955	.384 [6.14]	.352
1953-1956	.358 [5.10]	.319
1954-1957	.354 [4.84]	.316
1955-1958	.326 [5.03]	.320
1956-1959	.306 [5.61]	.324
1957-1960	.295 [5.41]	.304
1958-1961	.285 [5.15]	.298
1959-1962	.292 [4.95]	.296
Son's Hourly Wages at Age 30		
1949-1952	.323 [4.89]	.350
1950-1953	.419 [6.96]]	.434
1951-1954	.399 [6.89]	.412
1952-1955	.362 [5.97]	.354
1953-1956	.292 [4.50]	.290
1954-1957	.242 [3.86]	.247
1955-1958	.218 [3.85]	.242
1956-1959	.181 [3.45]	.225
1957-1960	.165 [3.27]	.207
1958-1961	.167 [3.27]	.203

References

Altonji, Joseph and Thomas Dunn. 1991. "Relationships among the Family Incomes and Labor Market Outcomes of Relatives." Cambridge, MA: National Bureau of Economic Research, Working Paper No. 3724.

Becker, Gary and Nigel Tomes. 1979. "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility." *Journal of Political Economy*, 87(6):1153-89.

Behrman, Jere and Paul Taubman. 1990. "The Intergenerational Correlation Between Children's Adult Earnings and Their Parent's Income: Results from the Michigan Panel Study of Income Dynamics." *Review of Income and Wealth*, 36(2):115-127.

Behrman, Jere, Zdenek Hrubec, Paul Taubman, and T. Wales. 1980. "Socioeconomic Success: A Study of the Effects of Genetic Endowments." *Family Environment, and Schooling*. New York: North-Holland.

Biblarz et al.

Bowles, Samuel and Herbert Gintis. 2000. "The Inheritance of Economic Status: Education, Class and Genetics." University of Massachusetts: Unpublished Manuscript.

Duncan, Greg, W. Yeung, J. Brooks-Gunn, J, Smith. 1998. "How Much Does Childhood Poverty Affect the Life Chances of Children." *American Sociological Review,* 63: 406-23.

Duncan, Otis Dudley and David Featherman and Beverly Duncan. 1972. *Socioeconomic Background and Achievement.* New York: Seminar Press.

Featherman, D.l. and R.M. Hauser. 1978. *Opportunity and Change*. New York: Academic Press.

Grusky, David and Thomas DiPrete. 1990. "Recent Trends in the Process of Stratification" *Demography* 27(4): 617-636.

Hauser 1998

Hout, Michael. 1988. "More Universalism, Less Structural Mobility: The American Occupational Structure in the 1980s" *American Journal of Sociology* 93*:*1358-1400.

Mayer, Susan E. 1997. *What Money Can't Buy: Family Income and Children's Life Chances*. Cambridge, MA: Harvard University Press.

Mulligan, Casey. 1997. *Parental Priorities and Economic Inequality*. Chicago: University of Chicago Press.

Murray, Shelia and William Evans and Robert Schwab. 1998. "Education-Finance Reform and te Distribution of Education Resources." *American Economic Review* 88(4): 789-812.

Sewell, William and Robert Hauser. 1975. *Education, Occupation and Earnings: Achievement in the Early Career*. New York: Academic Press.

Solon, Gary. 1992. "Intergenerational Income Mobility in the United States." *American Economic Review*. June:393-408.

Solon, Gary. 1999. “Intergenerational Mobility in the Labor Market” in *Handbook of Labor Economics, Volume 3* edited by Orley Ashenfelter and David Card. Elsevier Science.

Zimmerman, David. 1992. "Regression Towards Mediocrity in Economic Stature." *American Economic Review* June:393-408.

Table 1: Sample Characteristics for Men

Birth Year	Year Turned 30	N of Cases
1949-1952	1979-1982	243
1953-1956	1983-1986	312
1957-1959	1987-1989	228
1960-1962	1990-1992	247

Source: Author's calculations from PSID data described in text. Number of cases is based on the sample of son's with reported income data. The sample for wages is smaller by 100 cases because the PSID did not report wage data in 1992.

Table 2: Means and Standard Deviations for Parents' Income and Son's Outcomes

Outcome and Year of Birth	Mean	Standard Deviation	Ratio Parents/Sons Standard Deviation
Parents' Log Family Income			
1949-1952	10.79	.590	--
1953-1956	10.93	.544	--
1957-1959	10.93	.665	--
1960-1962	10.85	.651	--
Change 1962-1949	.060	.061	--
Son's Log Family Income			
1949-1952	10.65	.521	1.13
1953-1956	10.61	.611	.890
1957-1959	10.53	.620	1.07
1960-1962	10.57	.656	.989
Change 1962-1949	-.080	.135	
Son's Log Hourly Wages			
1949-1952	2.70	.528	1.12
1953-1956	2.64	.558	.975
1957-1959	2.56	.521	1.28
1960-1962	2.60	.599	1.09
Change 1962-1949	-.10	.071	

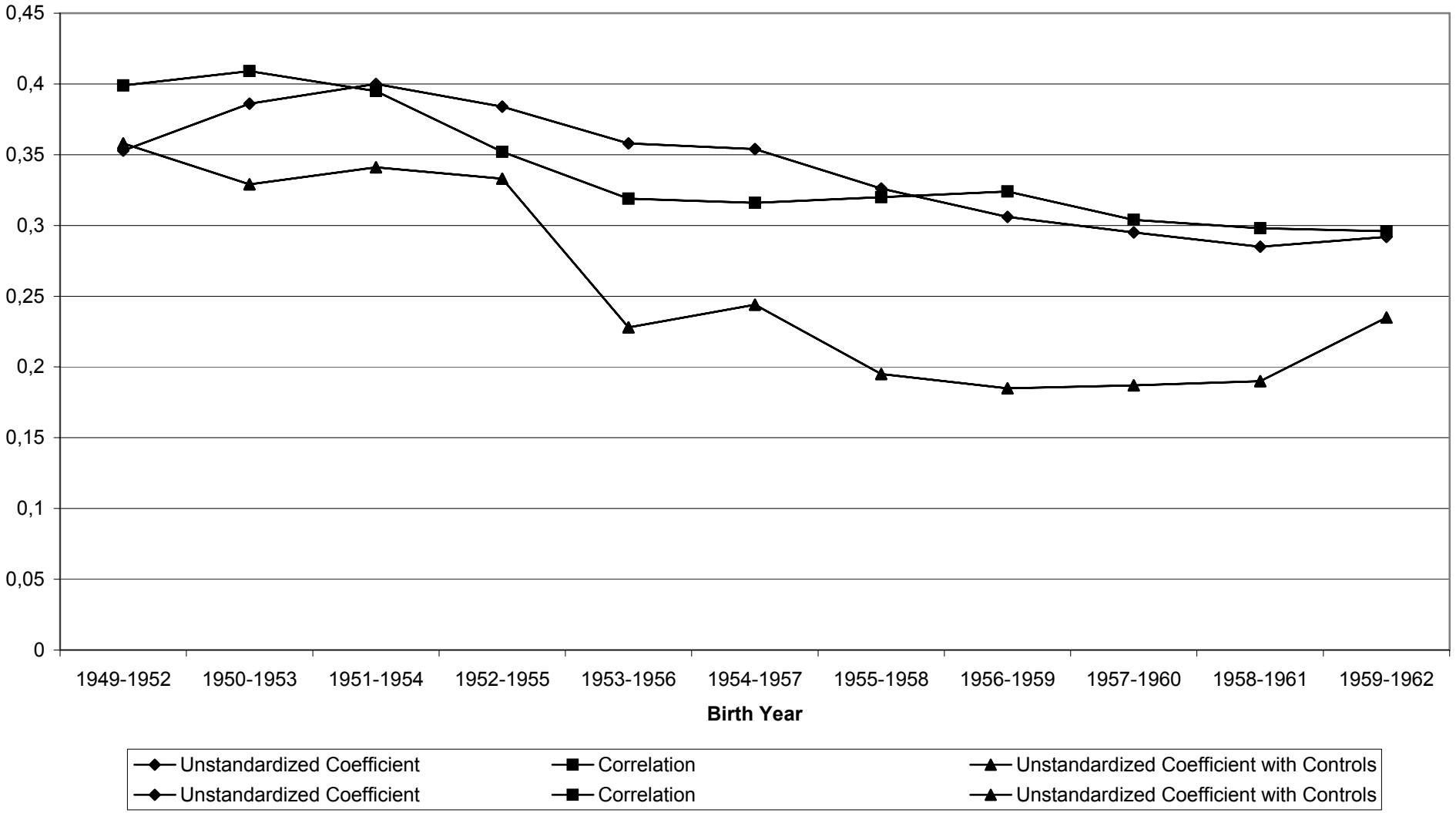
Table 3: Effect of Parent's Income on Son's Income and Wages

Son's Birth Year	Model 1: No Controls	Model 2: Controlling Son's Wage	Model 3: Adding Son's Education
Son's Family Income			
1949-1952	.353 (5.456)	.202 (3.304)	.147 (2.684)
1953-1956	.358 (5.103)	.150 (2.646)	.101 (1.886)
1957-1959	.343 (5.818)	.169 (3.085)	.139 (2.682)
1960-1962	.296 (3.975)	.134 (2.239)	.112 (1.594)
Son's Hourly Wage			
1949-1952	.323 (4.887)	na	.278 (3.67)
1953-1956	.292 (4.495)	na	.233 (2.80)
1957-1959	.202 (3.468)	na	.084 (1.28)
1960-1962	.161 (1.960)	na	.095 (1.51)

Table 4
Models Predicting Son's Outcomes Controlling Family Background Characteristics

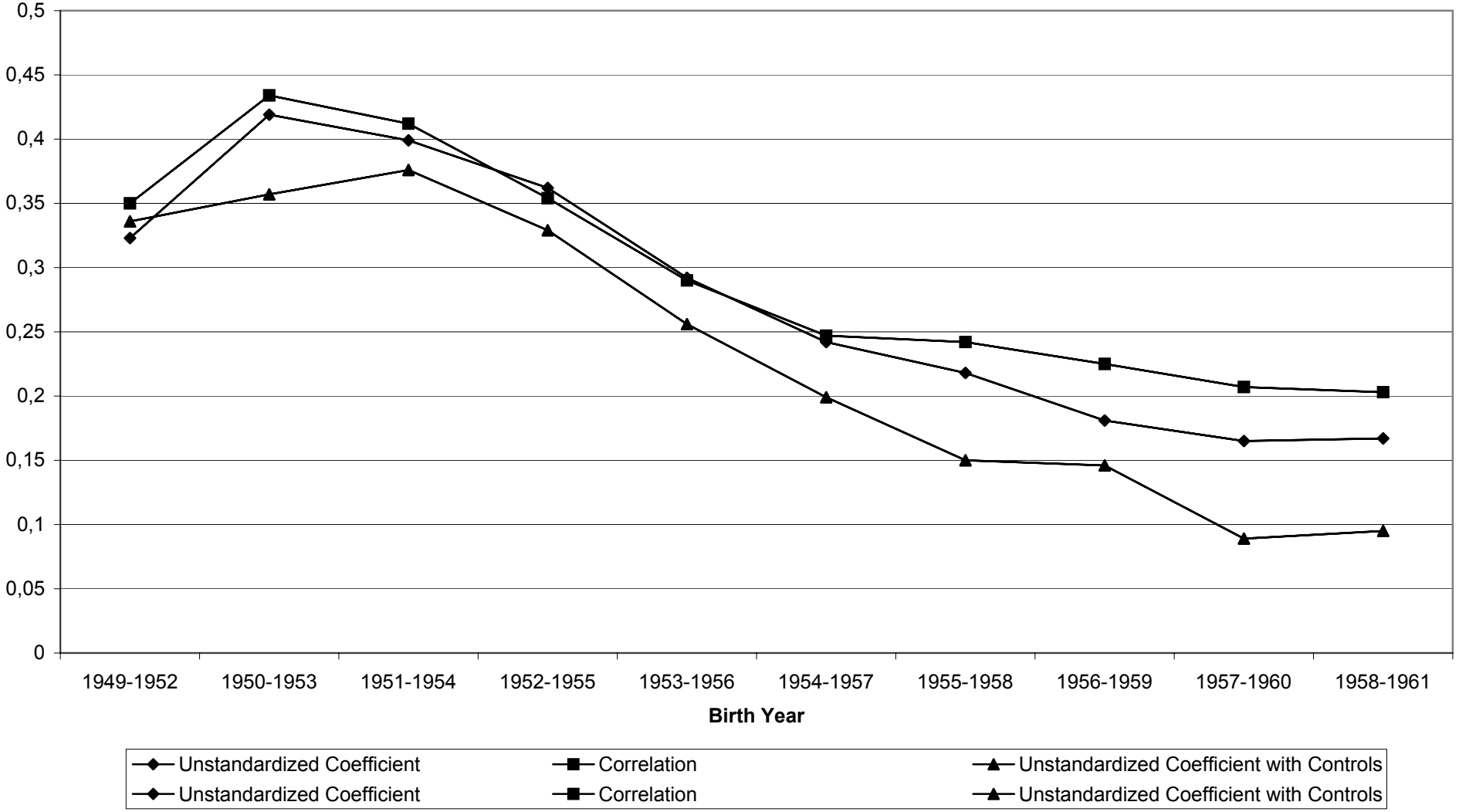
	Sons born 1949-1952	Sons born 1953-1956	Sons born 1957-1959	Sons born 1960-1962
Log Son's Income				
Log Parent's Income	.334	.255	.258	.263
	(4.346)	(2.924)	(3.729)	(2.870)
Parent's Education	.016	.022	.041	.040
	(1.084)	(1.146)	(2.225)	(1.730)
Parent's Married	-.188	-.035	-.190	-.239
	(-2.078)	(-.286)	(-1.683)	(-1.832)
Son Black	-.124	-.417	-.364	-.180
	(-1.164)	(-3.433)	(-2.729)	(-1.745)
R^2	.190	.138	.189	.136
Log Son's Wage				
Log Parent's Income	.339	.247	.154	.045
	(4.059)	(2.882)	(2.185)	(.452)
Parent's Education	.009	.016	.025	.076
	(.562)	(.987)	(1.396)	(3.425)
Parent's Married	-.193	-.099	-.212	-.168
	(-2.151)	(-.866)	(-1.833)	(-1.007)
Son Black	-.047	-.254	-.324	-.224
	(-.347)	(-2.284)	(-3.198)	(1.890)
R^2	.143	.105	.120	.157

Figure 1: Four-Year Estimates between Parental Income on Son's Income



Unstandardized Coefficient
Correlation
Unstandardized Coefficient with Controls

Figure 2: Four- Year Estimates between Parental Income and Son's Wages



Unstandardized Coefficient
Correlation
Unstandardized Coefficient with Controls

Figure 3: Four-Year "Rolling" Estimates of the Relationship between Parental Income and Son's Education